need not trouble about the self-contradictory statements of the aims and the objects of the new institution with which they were favoured by enthusiastic amateurs.

A VACATION course in practical and clinical bacteriology will be held at King's College, London, commencing Wednesday, August 5, and ending Saturday, August 15. Names must be sent in as soon as possible to the secretary or to Prof. Hewlett.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, June 11.—"On the Propagation of Tremors over the Surface of an Elastic Solid." By Horace **Lamb**, F.R.S.

The paper treats of the propagation of vibrations over the surface of a "semi-infinite" isotropic elastic solid, *i.e.* a solid bounded only by a plane. For purposes of description, this plane is conceived as horizontal, and the solid as lying below it.

The vibrations are supposed due to an arbitrary application of force at a point. In the problem most fully discussed this force consists of an impulse applied normally to the surface; but some other cases, including that of an internal source of disturbance, are also considered. Owing to the complexity of the problem, attention is concentrated for the present on the vibrations as they manifest themselves at the free surface, and the modifications which the latter introduces into the character of the waves propagated into the interior are accordingly not examined minutely.

The investigation claims interest on theoretical grounds, and also in relation to the phenomena of earthquakes. Attempts to interpret seismic phenomena by the light of elastic theory have hitherto been based, for the most part, on the general laws of wave-propagation in an unlimited medium, as developed by Green and Stokes; but Lord Rayleigh's discovery of a special type of surface-waves has made it evident that the influence of the free surface in modifying the character of the vibrations is more definite, and more serious, than had been suspected. The present memoir seeks to take a further step in the adaptation of the theory to the actual conditions, by investigating cases of *forced* waves, and by abandoning the restriction to simple-harmonic vibrations.

It is found that the surface disturbance produced by a single impulse of short duration may be analysed roughly into two parts, which we may distinguish as the "minor tremor" and the "main shock," respectively. The minor tremor sets in at any place, with some abruptness, after an interval equal to the time which a wave of longitudinal displacement (in an unlimited medium) would take to traverse the distance from the source. Except for certain marked features at the inception, and again (to a lesser extent) at an epoch corresponding to that of direct arrival of transversal waves, it may be described, in general terms, as consisting of a long undulation leading up to the main shock, and dying out gradually after this has passed. Its time-scale is more and more protracted, and its amplitude more and more diminished, the greater the distance from the source. The main shock, on the other hand, is propagated as a solitary wave (with one maximum and one minimum, in both the horizontal and vertical displacements); its time-scale is constant, and its amplitude diminishes only in accordance with the usual law of annular divergence, so that its total energy, unlike that of the minor tremor, is maintained undiminished. Its velocity is that of free Rayleigh waves, and is accordingly somewhat less than that of waves of transversal displacement in an unlimited medium.

"A Method for the Investigation of Fossils by Serial Sections." By Prof. W. J. **Sollas**, F.R.S.

Mechanical difficulties preclude the study of fossils by serial thin slices, but serial polished surfaces may be obtained at any desired degree of proximity, and these, when the fossil and its matrix offer sufficient optical contrast, serve most of the purposes of thin slices. They may be photographed under the microscope, so as to furnish a trustworthy and permanent record. The sections may be used to obtain reconstructions of the fossil in wax. Several fossils have been successfully studied in this way, such as *Palaeospondylus Gunni, Ophiura Egertoni, Lapworthura Miltoni, Monograptus priodon,* and *Palaeodiscus ferox.* The sections are obtained at regular intervals, usually of 0·025mm., by means of an apparatus designed for the purpose by the Rev. F. Jervis-Smith, F.R.S., reader of mechanics in the university.

"An Account of the Devonian Fish, *Palaeospondylus Gunni,* Traquair." By Prof. W. J. **Sollas**, F.R.S., and Igerna B. J. **Sollas**.

June 18.—"Some Preliminary Observations on the Assimilation of Carbon Monoxide by Green Plants." By Prof. W. B. **Bottomley** and Mr. Herbert **Jackson**. Communicated by Prof. J. Reynolds Green, F.R.S.

"The Bionomics of *Convoluta roscoffensis.*" By Dr. F. W. **Gamble** and Frederick **Keeble**, M.A.

Convoluta is a minute green Turbellarian organism that lives in such prodigious numbers on the coast of Brittany as to cover long stretches of the beach with a thick green scum.

Previous observers have directed attention to the fact that Convoluta is not merely an animal, but is an association of an animal and a plant, or plant-like organism, which is represented by the green cells. These cells contain chlorophyll, perform photosynthesis, and store starch, but, unlike algal cells, they have no cell-wall, and they are believed to have no power of surviving the death of the animal tissue. Whether they are exceptional animal cells or infecting plant-cells, or algæ acquired in past time and now inherited, is unknown. But it is supposed that the life of the animal has been modified to suit their requirements, that from their reserves the animal is fed, and that to the renewal of these reserves its movements are directed.

The present paper is an attempt to gain further insight into this strange problem. Dealing first with the question of food, the authors show what rays of light are effective in producing a surplus of starch, but they believe that this reserve does not furnish the source of food on which the animal tissue of Convoluta is nourished; for not only does this starch disappear with extreme slowness (7–8 days) in darkness, but direct evidence is forthcoming that in all stages of development Convoluta can, and does, ingest, that in the earlier ones diatoms and algæ are normally ingested and digested, and that in the later stages the green cells are bodily aggregated and digested in the gut.

Passing to the development of the green cells, the authors find the first trace of these cells as colourless, nucleated structures in the gut of the recently hatched animal. Direct proof of the intrinsic or extrinsic origin of these colourless cells is still lacking. The indirect evidence, however, is strongly in favour of the latter mode of origin. On this view Convoluta makes a pure culture from a mixed infection.

Further analyses than heretofore of the effects of light, heat, gravity, and other agencies on the behaviour of Convoluta are given. The *tonic,* even more than the *tropic,* effect of light determines the periodic tidal movements, now to the surface of the sand, and now below the surface. The direct tropic effect of light is greatest in the green rays, absent in the blue, and reversed in the red. The effect is modified by the absorbing or scattering character of the background, and by the age of the animal. At the moment of hatching, Convoluta is aphototropic.

Geotropic response is not exhibited by those Convoluta which fail to develop their otolith. Normally it is shown from the moment of birth.

The paper concludes with a description of the daily and lunar variations in the size and behaviour of the colonies, and with an explanation of these variations in terms of the tropisms and other habits of Convoluta.

"The Spectra of Neon, Krypton, and Xenon." By E. C. C. **Baly**, Lecturer on Spectroscopy in University College, London.

The gases were illuminated by the passage of the discharge from an induction coil through them under reduced pressures. Vacuum tubes were filled with each one of them, and the glowing gas in a capillary portion was examined "end on" through a quartz window. Considerable difficulty was experienced in the use of the tubes, owing to the disintegration of the electrodes and the absorption of the gas when the current was kept passing for long periods. The measurements were all made upon photographs taken with a Rowland concave grating of 10 feet focus and 14,438 lines to the inch; the first three orders of spectra were employed, and nearly all the chief lines were measured in two orders; the probable error of the measurements is less than 0·03 Angström unit. Each gas gives bright-line spectra, krypton and xenon having two and neon one; the second spectra of krypton and xenon are produced by placing a Leyden jar and a spark gap in the circuit with the vacuum tube.

Physical Society, June 26.—Dr. R. T. Glazebrook, F.R.S., president, in the chair.—Dr. **Waller** gave a demonstration of the effect of light on green leaves. The origin of these researches was the result of the consideration of the retinal effects after light stimulation, and the wish to have a sensitive surface naturally spread out for examination. The effect of light is to produce a current (of an E.M.F. of the order of 0·01 volt), at first from the illuminated to the dark parts in the leaf, and later (or as an after-effect) from dark to illuminated. These currents are apparently an index of two opposite processes in the leaf, *i.e.* dissimilation and assimilation, and give very close analogies to the analogous processes in animal tissues (*e.g.* nerves). Dr. Waller also demonstrated the "blaze" currents in animal and vegetable tissues. These are seen when a strong exciting current (such as an induction-shock of sufficient voltage) is led through a pair of non-polarisable electrodes, and these are then connected with a galvanometer. An electrical response (of greater energy than the exciting current) is given in a direction commonly homodrome to the latter, *i.e.* in the reverse direction to the ordinary polarisation counter-currents. This "blaze" response is the algebraic sum of post-anodic and post-kathodic currents; the resultant is commonly homodrome, but an antidrome blaze, distinguished from polarisation by its much greater order of magnitude, is also seen. Dr. Waller also showed two methods for the quantitative estimation of chloroform vapour in air. The first was by receiving the mixed gases into a flask of known capacity, absorbing the chloroform by means of olive oil, and reading the reduction of pressure by a manometer. The second was by the simple weighing of a light flask, first filled with air, then filled with mixed air and chloroform vapour.—Dr. N. H. **Alcock** exhibited a method of determining the temperature-limits of nerve activity in warm-blooded and cold-blooded animals. The higher limit was obtained by immersing the isolated nerve in 1·05 per cent. NaCl solution. It lies between 40° C. and 42° C. in the frog, 48° and 49° in the mammal, and is at 53° in the bird, corresponding closely to the coagulating point of the tissue proteids. The lower limits were obtained by cooling the nerve-chamber as a whole, and taking the temperature of the nerve with a compensated thermo-junction. The limits were −3°·5 C. for the frog, +3°·8 C. for the mammal, +6°·8 C. for the bird, giving a range of nerve-action of 45° C. to 46° C. for all animals. The method, therefore, permits of an hitherto impossible analysis of actually living nerve-substance.

Zoological Society, June 16.—Dr. F. Du Cane Godman, F.R.S., vice-president, in the chair.—Dr. H. **Woodward**, F.R.S., made a communication from Miss Dorothy M. A. Bate which contained a description of the remains of an extinct species of Genet from a Pleistocene cave-deposit in Cyprus, and which it was proposed to name *Genetta plesictoides*, sp. n.—Mr. G. A. **Boulenger**, F.R.S., described a new species of Gobiid fish from British New Guinea under the name of *Rhiacichthys novae-guineae*.—Mr. G. A. Boulenger also described the following five new species of reptiles from British New Guinea:—*Lygosoma milnense, L. granulatum, L. pulchrum, L. pratti*, and *Toxicocalamus stanleyanus*.—A second instalment of a paper, by Mr. Cyril **Crossland**, on the Polychæta of Zanzibar and British East Africa, contained descriptions of three new species of Marphysa, viz. *M. macintoshi, M. simplex*, and *M. furcellata*, and a new key to the known species of that genus. It also contained remarks on *Lysidice collaris* and its variations, and on the two species *Diopatra neapolitana* and *Onuphis holobranchiata*, which had hitherto not been met with in East Africa.—A communication on the parasites collected by the "Skeat Expedition" to Lower Siam and the Malay Peninsula in the year 1900 was read by the secretary on behalf of Mr. Arthur E. **Shipley**. The author stated that the area in which the collection was gathered had been hitherto unsearched by students of parasites, and referred to the high proportion of new forms that had been obtained. Among these were a new species of Tetrarhynchus, found in an Echinoderm, and an undeterminable species of Tetrarhynchus found in a sea-snake. The occurrence of these forms in such hosts was practically new to science. There were also described eight new species of Acanthocephala.—A communication from Messrs. Louis **Murbach** and Cresswell **Shearer** dealt with a collection of Medusæ from the coast of British Columbia and Alaska made in 1900. Specimens of fourteen species—of which five were new—were contained in the collection, and these were remarked upon or described.—Mr. F. E. **Beddard**, F.R.S., read a paper upon the modifications of the Syrinx in the Accipitres. The syringes of a number of genera were described in detail, and it was pointed out that the group could be divided into two families according to the form of this organ.

Chemical Society, June 17.—Prof. W. A. Tilden, F.R.S., in the chair.—The Longstaff medal was presented to Prof. W. J. Pope in recognition of his researches on the stereochemistry of compounds of elements other than carbon.—The following papers were read:—The estimation of arsenic in fuel, by Prof. T. E. **Thorpe**, F.R.S. A known quantity of the finely-powdered fuel is burnt in a stream of oxygen, the issuing gas is passed through a suitable absorption apparatus, and the absorption liquid, as well as the ash of the fuel, are tested for arsenic.—The electrolytic estimation of minute quantities of arsenic, more especially in brewing materials, by Prof. T. E. **Thorpe**, F.R.S. A special electrolytic arrangement is adopted whereby the electrolysis of dilute sulphuric acid is brought about in presence of the arsenical liquid, and the formation of arseniuretted hydrogen is detected in the usual way.—Crystallised ammonium sulphate and the position of ammonium in the alkali series, by Dr. A. E. H. **Tutton**. The molecular constants of crystals of ammonium sulphate indicate that the substitution of two ammonium groups for the two atoms of potassium in potassium sulphate produces approximately the same change as the substitution of two atoms of rubidium; on the other hand, the specific constants show that the ammonium radicle exerts a certain influence peculiar to itself in the series of alkali sulphates.—The action of hydrogen on sodium, by Mr. A. **Holt**.—The action of halogens on compounds containing the carbonyl group, by Dr. **Lapworth**. It is shown that the bromination of these compounds takes place more rapidly in presence of acids and alkalis.—Reactions involving the addition of hydrogen cyanide to carbon compounds, by Dr. **Lapworth**.—The acetoacetic ester synthesis, by Messrs. **Hann** and **Lapworth**.—Rimu resin, by Prof. **Easterfield** and Mr. **Aston**. This resin consists principally of rimuic acid $C_{16}H_{20}O_3$.—Note on the karaka fruit, by Messrs. **Easterfield** and **Aston**. This material, which in the raw state is bitter and poisonous, contains the glucosides karakin and corynocarpin. When an aqueous extract of the fruit is distilled, a distillate containing hydrocyanic acid is obtained.—The slow oxidation of methane at low temperatures, by Messrs. **Bone** and **Wheeler**.—The alkylation of sugars, by Prof. **Purdie** and Mr. **Irvine**.—Trimethyl-α-methylglucoside and trimethylglucose, by Messrs. **Purdie** and **Bridgett**.—Note on the corrosion of an Egyptian image, by Mr. H. **Bassett**, jun. An examination has been made of a green coating covering a bronze image, probably dating from the period 200–100 B.C., recently found in the delta of the Nile. The principal constituents are cupric chloride and oxide, lead oxide, stannic oxide, water, silica, and small quantities of nickel and iron oxides.—The oxidation of pinene with chromyl chloride, by Prof. **Henderson**, Messrs. **Gray** and **Smith**.—Some physical and chemical properties of strong nitric acid, by Messrs. **Veley** and **Manley**. It is shown that the density, contraction, refractive index, and electrical conductivity vary regularly until the concentration of the acid reaches 92 per cent., but from this point to 100 per cent. the variation is exceptional. These facts are in harmony with Hartley's view that acid of 96 per cent. strength contains a definite compound of the formula $3H_2N_2O_6,H_3NO_4$.—Notes on ozone, by Mr. **Inglis**. The molecular state of ozone in acid and aqueous solutions cannot be ascertained by solubility determinations, since equilibrium between the gas and its solutions cannot be secured.

Geological Society, June 10.—Mr. J. J. Harris Teall, F.R.S., vice-president, in the chair.—On primary and secondary devitrification in glassy igneous rocks, part i., by Mr. John **Parkinson.** The types of primary devitrification as found at Obsidian Cliff are briefly reviewed, and reference is made to the conditions which favoured primary devitrification at Obsidian Cliff. After a brief reference to secondary devitrification, this part of the paper concludes with a summary in which the several relations of secondary to primary devitrification-structures are given.—Part ii., by Prof. T. G. **Bonney,** F.R.S. Certain conditions, such as slow cooling, supersaturation, and the presence of inclusions are favourable to crystallisation, some special cases of which are discussed in the paper. The structures thus formed in rocks may be classified as (1) the linear, and (2) the granular, and the former may be subdivided into (*a*) the rectilinear, (*b*) the curvilinear. Spherulitic structure in its simpler form falls under (*a*), and is at first little more than a radial grouping of molecules, the process becoming gradually more complicated. Of this, "graphic" or "pegmatitic" structure is a final stage, where two minerals are crystallising out of a solution, and one has slightly the advantage over the other, so that it virtually forms a skeleton-crystal. Into this the ordinary radial growth of a spherulite may be seen to pass; likewise also examples of (*a*) into those of (*b*), the latter being due to the "leading" mineral meeting with a rather stronger resistance, as if a crystal were forming in a very tough jelly. The granular structure is discussed, and explanations are offered of its varieties. In conclusion, the relation of some of these structures to an eutectic composition is discussed.—Geology of the Ashbourne and Buxton branch of the London and North-Western Railway—Crake Low to Parsley Hay, by Mr. H. H. **Arnold-Bemrose.** The present paper is a continuation of one published in 1899, and deals with the geology of the next eight miles of this railway.

Royal Microscopical Society, June 17.—Mr. Wm. Carruthers, F.R.S., vice-president, in the chair.—In the absence of Lord **Rayleigh,** his paper on the theory of optical images with special reference to the microscope was read by Dr. Hebb.—Dr. H. **Siedentopf** read a paper on the rendering visible of ultra-microscopic particles and of ultra-microscopic bacilli. The subject was illustrated by microscopes fitted with special illuminating apparatus, various objects, and drawings on the blackboard.—A communication relating to the preceding subject, sent by Dr. Johnstone Stoney, was read by the secretary. There was a lengthy discussion on the three papers, in which Prof. J. D. Everett, Dr. S. Czapski, Mr. J. W. Gordon, Mr. Rheinberg, Dr. C. V. Drysdale, Dr. Beilby, and Mr. Conrad Beck took part. Owing to the lateness of the hour, the following papers were taken as read:—On the "lag" in microscopic vision (continued); an improved horseshoe stage and a micrometric correction for minute objects, by Mr. E. M. **Nelson**; and a method of mounting bacteria from fluid media, by Mr. J. A. **Hill.**

Challenger Society, June 24.—Dr. R. N. Wolfenden in the chair.—Mr. V. H. **Blackman** contributed some notes on Bipolar plants; a comparison of the 259 Arctic and 269 Antarctic Algæ shows that no less than 54 species are found both north and south of the tropics, but not between them; of the larger brown seaweeds not even a genus is common to the two poles.—Dr. **Fowler** read notes on the distribution of some Amphipoda collected by him in the Bay of Biscay at various depths during a cruise in H.M.S. *Research,* 1900; they had been identified by the Rev. T. R. R. Stebbing. Among these were two Arctic cold-water forms, *Scina borealis*, Sars., and *Cyphocaris anonyx*, Boeck., taken between 750–500 fathoms and 300–400 fathoms respectively, but not known from shallow water at low latitudes; and *Hyperioides longipes*, Chevreux, distributed round the 100 fathom horizon as a centre, but not occurring at the surface or at great depths.

CAMBRIDGE.

Philosophical Society, May 18.—Dr. Baker, president, in the chair.—A coleopterous insect embedded in the wall of the human intestine, by Mr. D. **Sharp,** F.R.S. The author gave an account of the finding, by Dr. W. H. Ligertwood, of a living specimen of *Otiorhynchus tenebricosus* embedded in the wall of the intestine of a patient who died in the Wells Asylum. The position of the foreign body was in the ileum about eighteen inches from the ileo-cœcal valve. This beetle is purely herbivorous in its habits.—Exhibition of a rare parasite, by Mr. A. E. **Shipley.**—On the influence of electrons on colloidal solutions, by Mr. W. B. **Hardy,** F.R.S. Specially purified globulin from blood was dissolved (*a*) in a trace of acetic acid, (*b*) in a trace of sodium hydrate. In presence of acetic acid the globulin was found to move in an electric field from anode to kathode, in presence of alkali it moved from kathode to anode. In the former case, therefore, the globulin particles carried a positive charge, in the latter a negative charge. These two solutions were exposed to the radiations from radium bromide, and it was found that the electro-negative solution of globulin was turned into an opaque jelly in three minutes, while the electro-positive solution became more mobile and less opalescent.—On bismuth, by Mr. R. H. **Adie.** The discrepancies between the atomic weight of bismuth as determined by Schneider and Marignac = 208 and by Classen = 208·9, have been hitherto discussed on the assumption that the cause is the presence of lead. The author, by adopting a combination of fractionation as subnitrate and distillation as chloride, has succeeded in obtaining sufficient silica from pure bismuth to account for the low values of the former observers. The determination of the atomic weight and the isolation of a new coloured substance is now proceeding.—On the influence of great dilution on the absorption spectra of highly concentrated solutions of the nitrates and chlorides of didymium and erbium, by Mr. J. E. **Purvis.** The experiments prove that (1) the absorption bands of very highly concentrated solutions of the chlorides of didymium and erbium are not altered when the solutions are highly diluted. (2) The absorption bands of very highly concentrated solutions of the nitrates of didymium and erbium are considerably less diffuse when the solutions are highly diluted. This effect is analogous to that produced in the spectra of some gases and vapours by diminishing the density of the gas or vapour. (3) The absorption bands of very concentrated and very diluted solutions of the chlorides of didymium and erbium are precisely similar to those observed in the very diluted solutions of the nitrates of these two earths.—On a method of estimating the amounts of the oxides of didymium and erbium by means of the absorption bands of their solutions, by Mr. J. E. **Purvis.**—A lecture experiment to illustrate the rotation of a magnetic pole around a straight current, by Mr. P. V. **Bevan.**—Irreversible simultaneous linear reactions, by Mr. H. O. **Jones** and O. W. **Richardson.**

PARIS.

Academy of Sciences, June 29.—M. Albert Gaudry in the chair.—Researches on one and two fluid batteries, by M. **Berthelot.**—On the mechanical analysis of soils, by M. Th. **Schlœsing.** A discussion of the relation between the nature and amount of a substance deposited from suspension in water, and the time taken to settle. Experimental results on sandy, clay, and loam soils are given.—On the influence of the introduction of unsaturated radicles on the rotatory power of active molecules, α-allyl, α-propyl, and δ-methyl-β-cyclopentanonecarboxylic esters, by MM. A. **Haller** and M. **Desfontaines.** The conversion of an aliphatic active molecule into a cyclic molecule is accompanied with a large rise in the rotatory power. The rotatory power of the allyl ester is distinctly higher than that of the propyl derivative.—Observations on the comet 1903 *c*, discovered by M. Borrelly at the Observatory of Marseilles, June 21, by M. E. **Stephan.** The comet possesses a nucleus of the tenth magnitude, and a tail extending 5′ or 6′.—Observations made at the Observatory of Lyons during the partial eclipse of the moon of April 11; final results, by M. Ch. **André.**—Observation of the bright spot of Saturn with the 38cm. equatorial of the Observatory of Toulouse, by M. F. **Rossard.**—The elements of the Borrelly comet, by M. G. **Fayet.** Calculated from observations made at the Paris Observatory. The brightness of the comet will reach its maximum about July 14, and the comet will then be in a position very favourable for observation, and may be visible to the naked eye for some days.—Observations on the new Borrelly comet made at the Paris Observatory, by M. G. **Bigourdan.**—Observations on the Borrelly comet made with the 31·8cm. equatorial at the Observatory of Algiers, by MM. **Rambaud** and **Sy.**—Observations on the Borrelly comet made at the Paris Observatory, by M. **Salet.**—Observations on the comet 1903 *c* (Borrelly) made at the Observatory of Besancon, by M. P. **Chofardet.**—Observations on the Borrelly comet made with the Brunner 16cm. equatorial at the Observatory of Lyons, by MM. J. **Guillaume** and G. **Le Cadet.**—The influence of altitude on the duration of the reduction of the oxyhæmoglobin in man, by M. A. **Hénocque.** The effect of living at altitudes of 1000 to 2000 metres is to produce a marked prolongation in the duration of the reduction of the oxyhæmoglobin, a phenomenon which gives a new explanation of the adaptation of the human body to these heights.—On the integration of series, by M. W. H. **Young.**—On the experimental laws of sliding friction, by M. Henri **Chaumat.**—The electrotypograph and the teletypograph, by M. **de Tavernier.**—On the theory of nickel steels, by M. C. E. **Guillaume.** Nickel steels can be classified in two divisions, according as they do or do not possess a thermal hysteresis.—On the spontaneous dichroism of mixed liquids, by M. Georges **Meslin.** All liquids which possess spontaneous dichroism are also those which are the most active under the influence of the magnetic field; the reciprocal of this is also true.—On the phenomena connected with the mast in wireless telegraphy, by MM. André **Broca** and **Turchini.**—The relation between the dielectric cohesion of a gas and its temperature, by M. E. **Bouty.** For temperatures between 20° C. and 190° C., air, hydrogen and detonating gas possess a dielectric cohesion which is independent of the temperature, from which the law is deduced that the dielectric cohesion of a gas or of a mixture of gases depends only on the mean distance of the molecules.—Determination of the electrochemical equivalent of silver, by MM. **Pellat** and **Leduc.** A detailed account is given of the numerous precautions observed in this determination, the mean result being 0·011195.—On the electrolytic transport of certain ions in gelatin, by M. Aug. **Charpentier.**—The production of ozone in spirals with high tension currents of high frequency, by M. H. **Guilleminot.**—Positive accumulator plates of high capacity, by M. **Vaugeois.** Capacities of from 0·7 to 1·24 ampere-hours per square decimetre of plate have been obtained.—On recent results obtained in the treatment of arterial hypertension by d'Arsonvalisation, by M. A. **Moutier.**—A new method for putting in evidence ultra-microscopic objects, by MM. A. **Cotton** and H. **Mouton.**—On the anticipated liquefaction of oxygen from air, by M. Georges **Claude.** If air is liquefied progressively, the first portions are rich in oxygen.—Study of the mode of oxidation of manganese salts by alkaline persulphates in acid liquids, by M. H. **Baubigny.**—The preparation and properties of some new plumbic derivatives, together with their thermochemical data, by M. Albert **Colson.**—On an organic base containing phosphorus, its constitution and some of its salts, by M. P. **Lemoult.** The substance obtained by the interaction of PCl_5 and aniline has not the constitution $PCl(NH.C_6H_5)_4$ ascribed to it by Gilpin, but is more probably the hydrochloride of a new base, $(C_6H_5.NH)P.N.C_6H_5$, various salts of which are described.—The volumetric estimation of nitric nitrogen, by M. **Débourdeaux.**—On silicon amide and imide, by MM. Em. **Vigouroux** and **Hugot.** The amide is produced by the interaction of silicon tetrachloride and ammonia at temperatures below 0° C., above 0° the imide is the chief product.—Combinations of hydroferrocyanic acid with organic compounds, by MM. **Chrétien** and **Guinchant.**—The preparation of primary alcohols by means of the corresponding acids, by MM. L. **Bouveault** and G. **Blanc.** The methyl and ethyl ester of the fatty acid is reduced by sodium in the presence of absolute alcohol. Details are given for octanol.—The influence of the nature of the external medium on the formation and evolution of odoriferous compounds in plants, by MM. E. **Charabot** and A. **Hébert.**—New method for the estimation of oxalic acid in urine, food, &c., by M. **Albahary.**—On the production of glucose by animal tissues, by MM. **Cadéac** and **Maignon.**—Researches on the transversal scalariform striated bands in the cardiac fibres, by M. F. **Marceau.**—The action of carbon dioxide on the eggs of echinoderms, by M. C. **Viguier.** The theory of temporary poisoning of Delage is not true for the sea urchins; carbon dioxide is not clearly differentiated from other reagents used in experiments on artificial parthenogenesis.—On the development of the ovary of *Polyxenus lagurus*, by M. A. **Lécaillon.**—The action of emulsin on salicin and amygdalin. Theory of the action of emulsin, by MM. Victor **Henri** and S. **Lalou.** The emulsin forms an intermediate compound with the body upon which it is acting, and this is decomposed, regenerating the ferment.—On the teratological forms of *Sterigmatocystis nigra* deprived of potassium, by MM. **Molliard** and H. **Coupin.**—On *Cryptostegia madagascariensis*, by M. Henri **Jumelle.**—On a new group of fungi, the Bornetineæ, and on *Bornetina Corium* of the vine, by MM. L. **Mangin** and P. **Viala.**—On the bilateral symmetry of the rootlets of *Pontederia crassipes*, by M. **Chiffiot.**—On the presence of macroscopic crystals of albite in the dolomites of the Trias of Crete, by M. L. **Cayeux.**—Observations on glacial phenomena in Corsica, by M. Paul **Castelnau.**—On the existence of two great circles of maximum seismic instability, by M. de Montessus **de Ballore.**—On a chicken which lived seven days after hatching out, with a second yolk enclosed in the abdomen, by M. Frédéric **Houssay.**—Apparatus for the inhalation of oxygen, by M. **Guglielminetti.**—The variable state of active muscles during the time of a contraction in the ergograph, by MM. A. **Imbert** and J. **Gagnière.**—Dust shower recently observed in Iceland, by M. Stanislas **Meunier.**

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